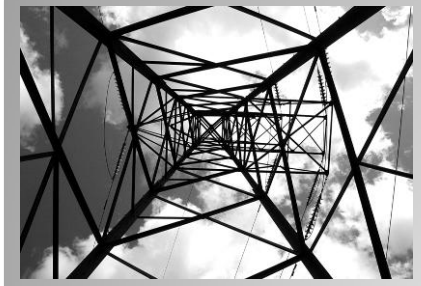



Cost Issues

Breakout Sessions

OBJECTIVES

- Who Pays for What ?
- Contestable & Non-Contestable Works
- Common Connection Charging Methodology
- Cost Apportionment
- Lower Cost/Innovative alternatives to Reinforcement
- Main Factors affecting cost + delivery timescales
- Open Questions

Transmission v DNO connections

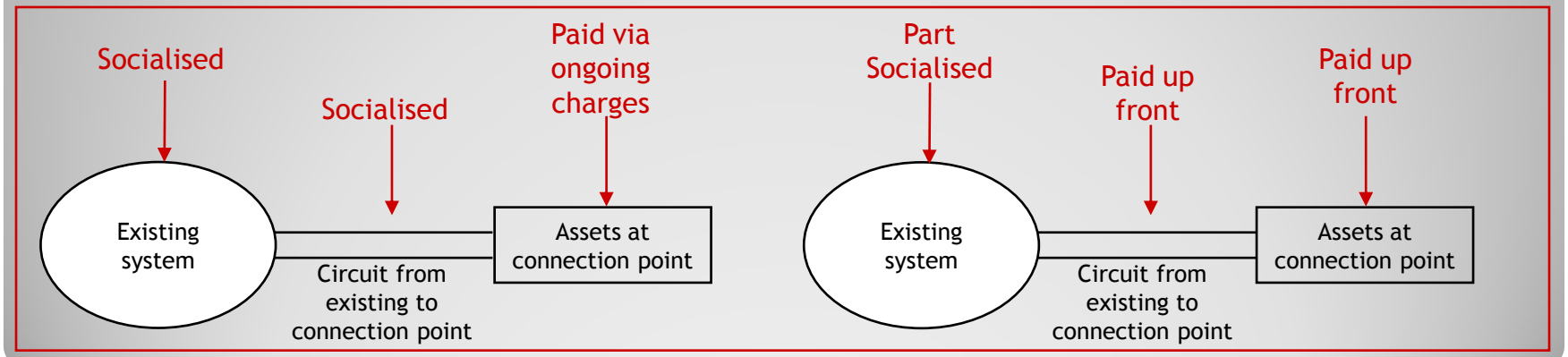
NGET (132 kV & above in Scotland)

- High capacity networks (particularly in areas of high population density)
- High asset infrastructure cost
- Significant capacity issues in the generation rich areas (most of Scotland)
- High MW but lower volume of generation connections
- Lengthy queues for new generation connections

DNO (below 132 kV in Scotland)

- Lower capacity networks (especially in rural areas)
- Lower asset infrastructure cost
- Capacity issues/queues more localised
- High volume of lower MW connections now has significant collective impact on associated transmission networks.
- No automatic entry rights to transmission system (managed by NGET)

Cost allocation



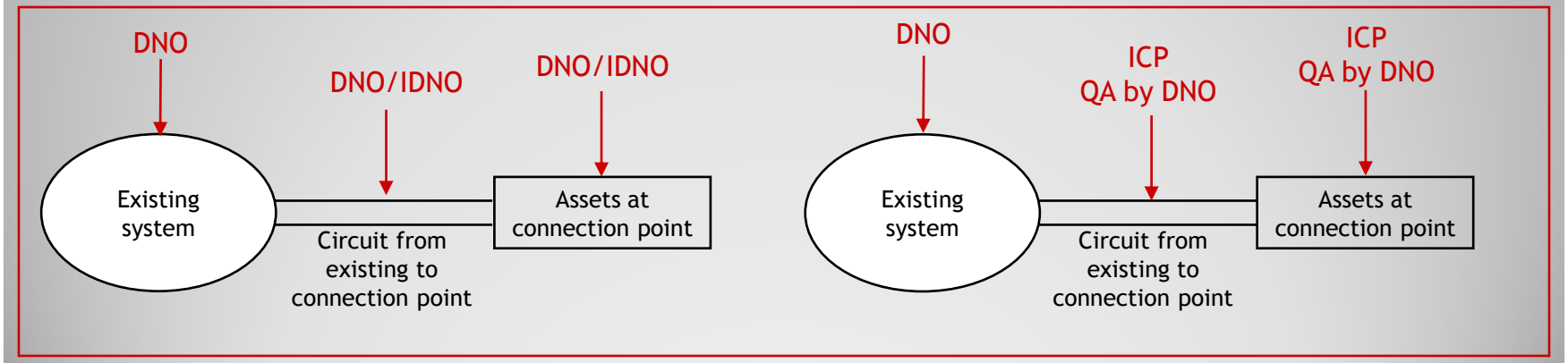
The connection is open to Competition

DNO construction

- Can be provided by DNO
- Independent Distribution Network Operators (IDNOs) also provide connections

ICP construction (Independent Connections Provider)

- Lloyds Accredited
- Constructed to DNO specifications
- DNO adopts network on completion
- Some non-contestable work still carried out by DNO
  - infrastructure reinforcement
  - connection & energisation work within existing DNO substation/sites
  - QA of ICP work



Common Connection Charging Methodology (CCCM)

- Sets common framework for determining and publicising charging methodology for all DNO's in GB - approved by Ofgem.
- Application Process – Budget, Feasibility Study & Formal Offer options defined.
- Capacity only allocated via formal Offer on first come first served basis, irrespective of status of project.
- Requirement for DNO to design connection based on minimum cost engineering solution that meets all technical requirements of DNO, industry codes, etc & customer request.
  - Means DNO NOT allowed to speculatively reinforce networks if no formal connection request in process.
- Defines margin to be applied to cost of minimum engineering solution and how costs are split between DNO & Generator.
- Process for dealing with Interactive Quotations when more than one party competing for access to network with limited capacity at same time.
- Rebates for any future party connecting to any of network fully funded by earlier developer (5 year time limit).
- Consistent application of Cost Apportioned Reinforcement.

What is Cost Apportionment ?

from the CCCM….

> "Reinforcement is defined as assets installed that adds capacity to the existing shared Distribution System. The cost for reinforcement shall be apportioned between you and us."

As reinforcement is driven by either Circuit Capacity or Fault Level the formulas are:

1. Security CAF = Required Capacity/New Network Capacity *100%, or
2. Fault Level CAF = 3 * Fault Level Contribution from generator/New fault Level Capacity *100%.

- 2nd Comer charges – future connecting parties pay same £/kW rate for their share of the reinforcement.
- DNO contribution recovered through future UoS charges but capped at £200/kW.
- Could have significant delivery timescale implications in addition to cost.
- Extensive worked examples given in CCCM derived from UK wide sub-group.

Alternative Solutions to Minimise Reinforcement

Distribution Solutions:

- Adjustment of transformer ratios to lower voltage levels.
- Voltage Regulators.
- Generators operating in Voltage Control.
- Active Network Management/Smart Grid (constrained connection).
- DSTATCOMS.
- Provide connection to higher voltage network.
- Energy Storage/Controllable Demand

And For Transmission Constraints:

- Active Network Management/Smart Grid.
- Connect and Manage.

Main Factors Affecting Costs + Timescale

- Location, Location, Location…
- Costs and timescale for the same Generator may vary substantially at different locations due to:
  - Distance to nearest part of network.
  - Capacity of existing network in vicinity.
  - Other generators already connected to circuit.
  - Capacity already “booked” by other parties on circuit (even although their project is less advanced in terms of Planning Consent, ability to connect).
  - Interactivity with other generators in process.
  - Transmission dependency. (particularly in Scotland)
  - Volatile Metal Price fluctuations.
  - Cost of 3rd party landowners granting wayleave consent for most direct route at standard rates.
  - Requirements of other statutory bodies. eg Planning Conditions, Environmental Impact Assessment, Archaeological watching brief, etc.

Questions?